

WE CLAIM AS OUR INVENTION:

1. An optoelectronic semiconductor chip comprising:
an active layer containing a photon-emitting zone, said active layer having a bonding side;
a carrier member to which said active layer is attached at said bonding side; and
said active layer having a recess having a cross-sectional area which decreases with increasing depth of said recess into said active layer proceeding from said bonding side.
2. An optoelectronic semiconductor chip as claimed in claim 1 wherein said recess is disposed in said active layer so that said recess interrupts said photon-emitting zone.
3. An optoelectronic semiconductor chip as claimed in claim 1 wherein said active layer has a plurality of recesses each corresponding to said recess, and wherein said active layer has a connecting layer disposed at said bonding side, said connecting layer having a plurality of elevations formed by said plurality of recesses.
4. An optoelectronic semiconductor chip as claimed in claim 3 wherein said photon-emitting zone and said elevations are disposed relative to each other so that at least one trajectory of photons emitted by said photon-emitting zone proceeds from one of said elevations to a neighboring one of said elevations.

5. An optoelectronic semiconductor chip as claimed in claim 3 wherein said elevations are tapered toward said carrier member.

6. An optoelectronic semiconductor chip as claimed in claim 5 wherein said elevations each have concave lateral faces.

7. An optoelectronic semiconductor chip as claimed in claim 3 wherein said elevations each have a truncated pyramidal shape.

8. An optoelectronic semiconductor chip as claimed in claim 3 wherein said photon-emitting zone is disposed in a portion of said elevations neighboring said connecting layer.

9. An optoelectronic semiconductor chip as claimed in claim 3 wherein said connecting layer is transparent for photons emitted by said photon-emitting zone.

10. An optoelectronic semiconductor chip as claimed in claim 3 wherein said connecting layer is highly doped.

11. An optoelectronic semiconductor chip as claimed in claim 3 further comprising a reflective layer covering said elevations.

12. An optoelectronic semiconductor chip as claimed in claim 11 wherein said reflective layer comprises a metallization layer adjacent an insulating layer.

13. An optoelectronic semiconductor chip as claimed in claim 1 wherein said active layer has a thickness which is less than 50 μm .

14. An optoelectronic semiconductor chip as claimed in claim 1 wherein said active layer has a thickness of less than 30 μm .

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